



Public Health  
Agency of Canada

Agence de la santé  
publique du Canada

Canada

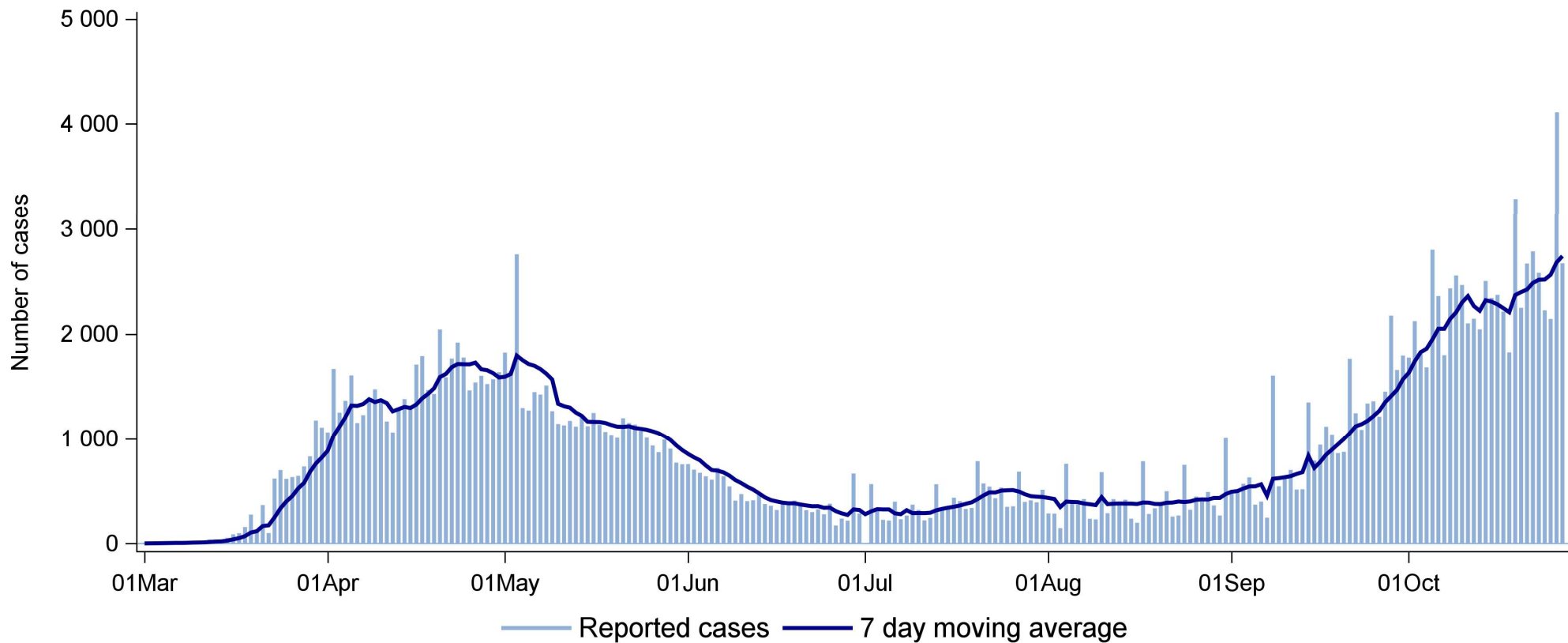
# Update on COVID-19 in Canada: Epidemiology and Modelling

Oct 30<sup>th</sup>, 2020

PROTECTING AND EMPOWERING CANADIANS  
TO IMPROVE THEIR HEALTH

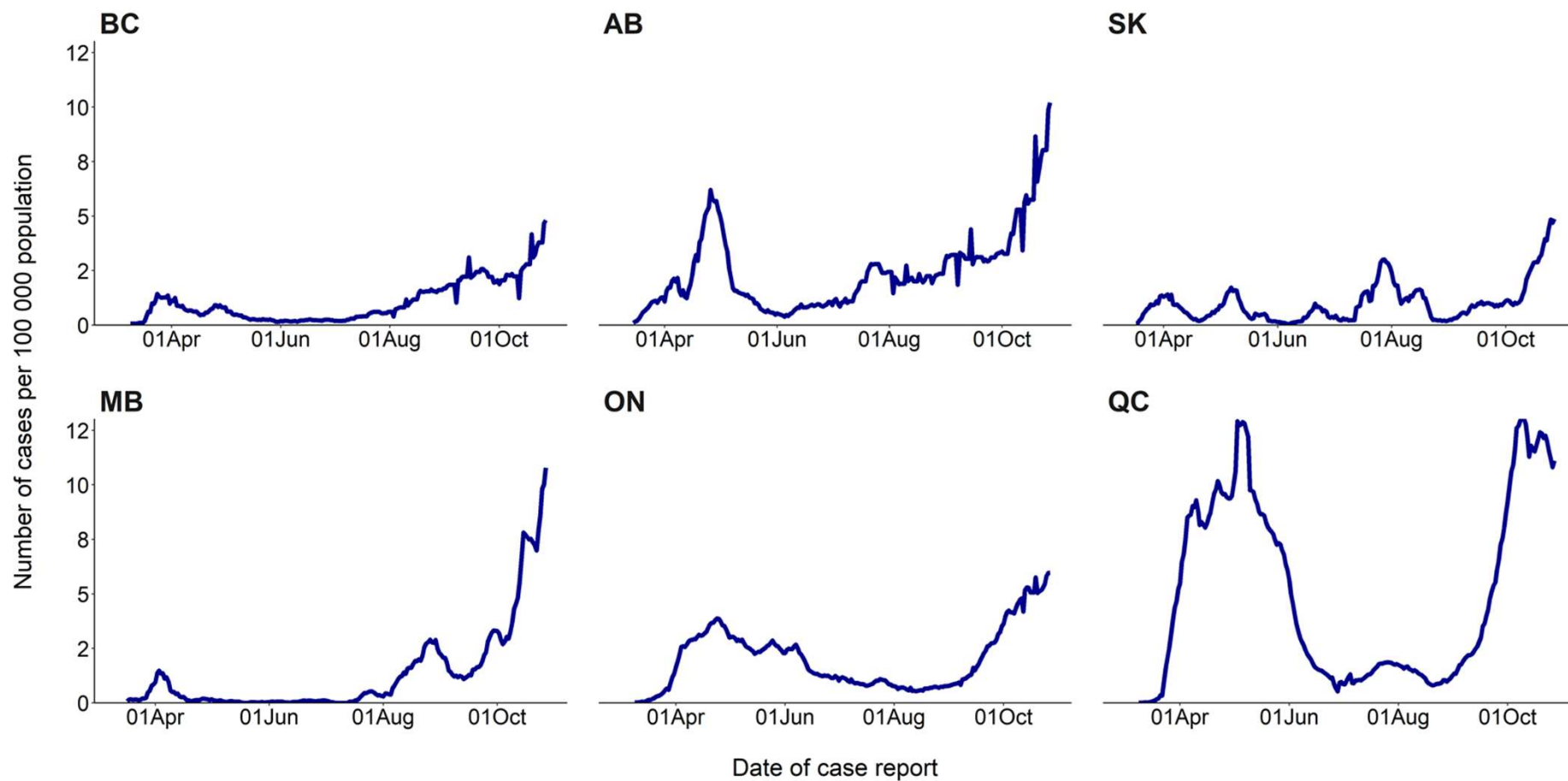


## Daily case counts of COVID-19 continue to increase nationally



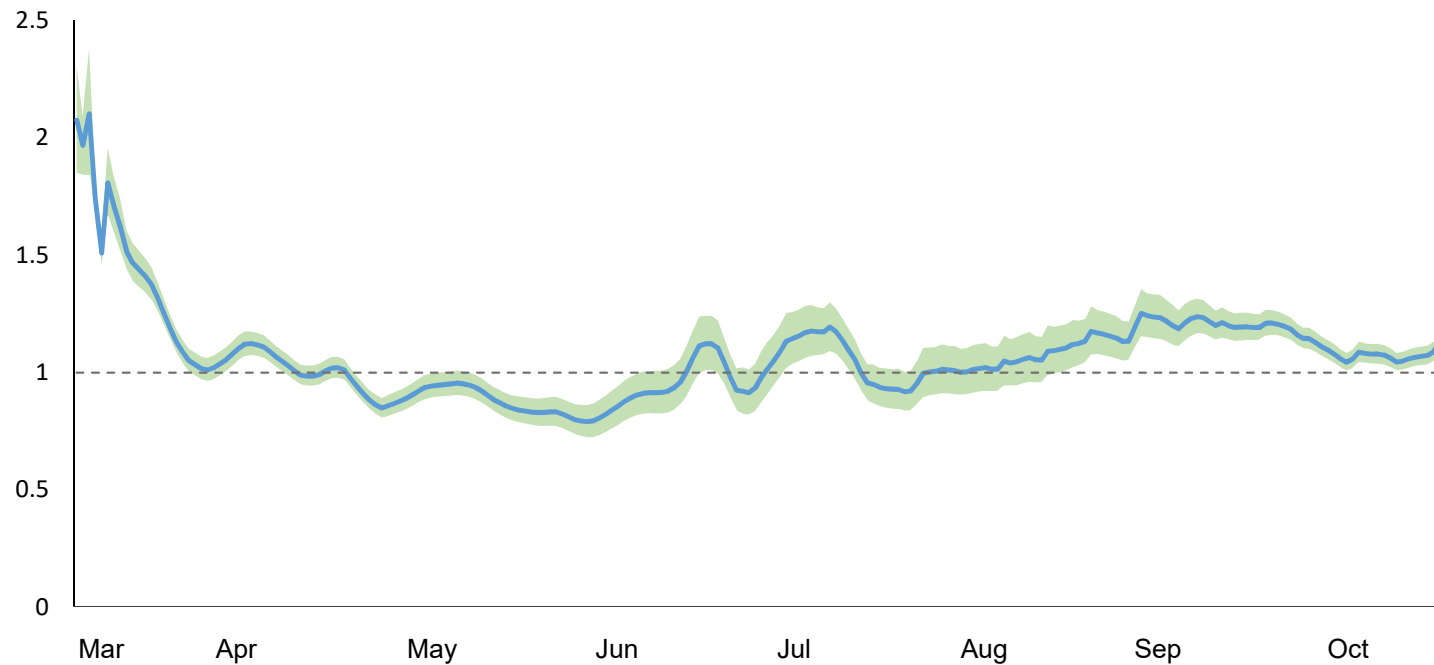
Data as of October 27, 2020

## The incidence rate of COVID-19 is varying by province and region



Data as of October 27, 2020

## Each new case in Canada is spreading infection to more than one person, keeping the epidemic in a growth pattern



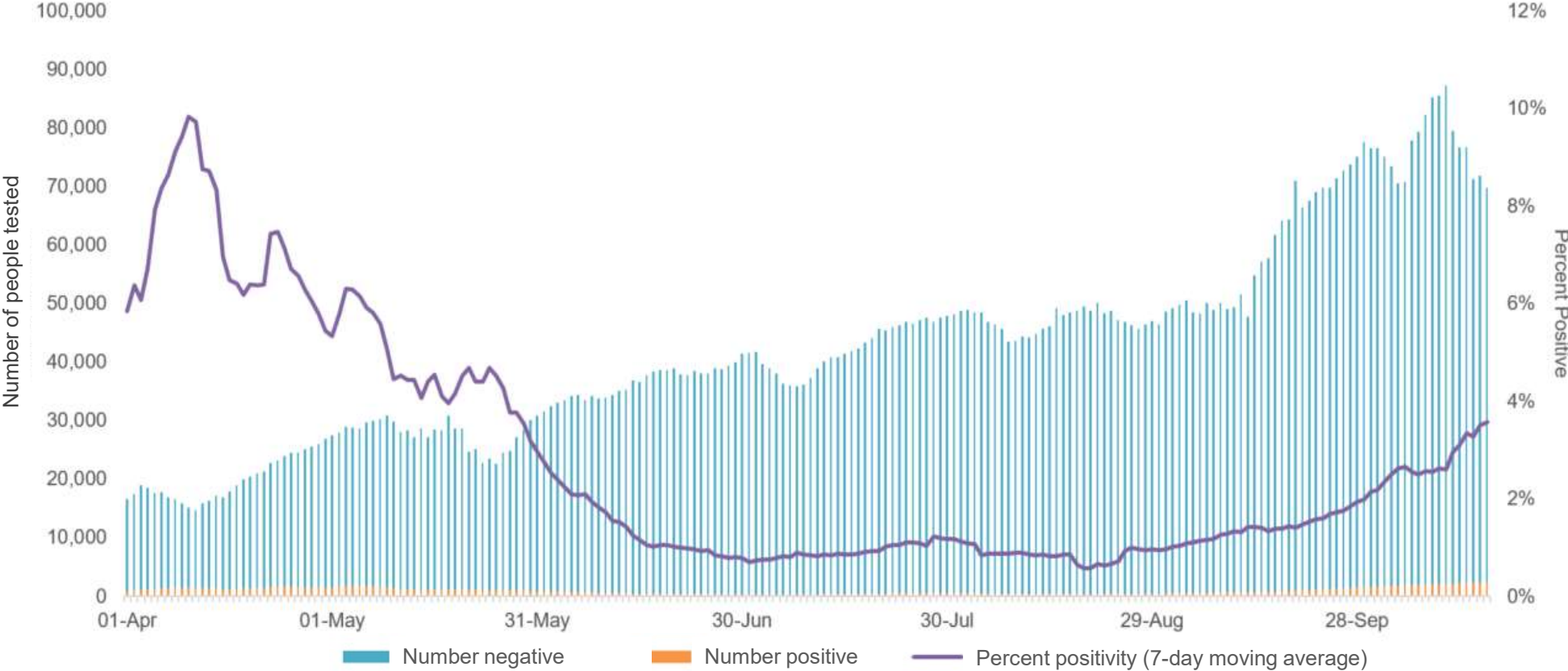
When  $R_t$  is consistently  $>1$ , the epidemic is growing

Since mid-August, Canada's  $R_t$  has remained  $>1$

### Canada's $R_t$ over time

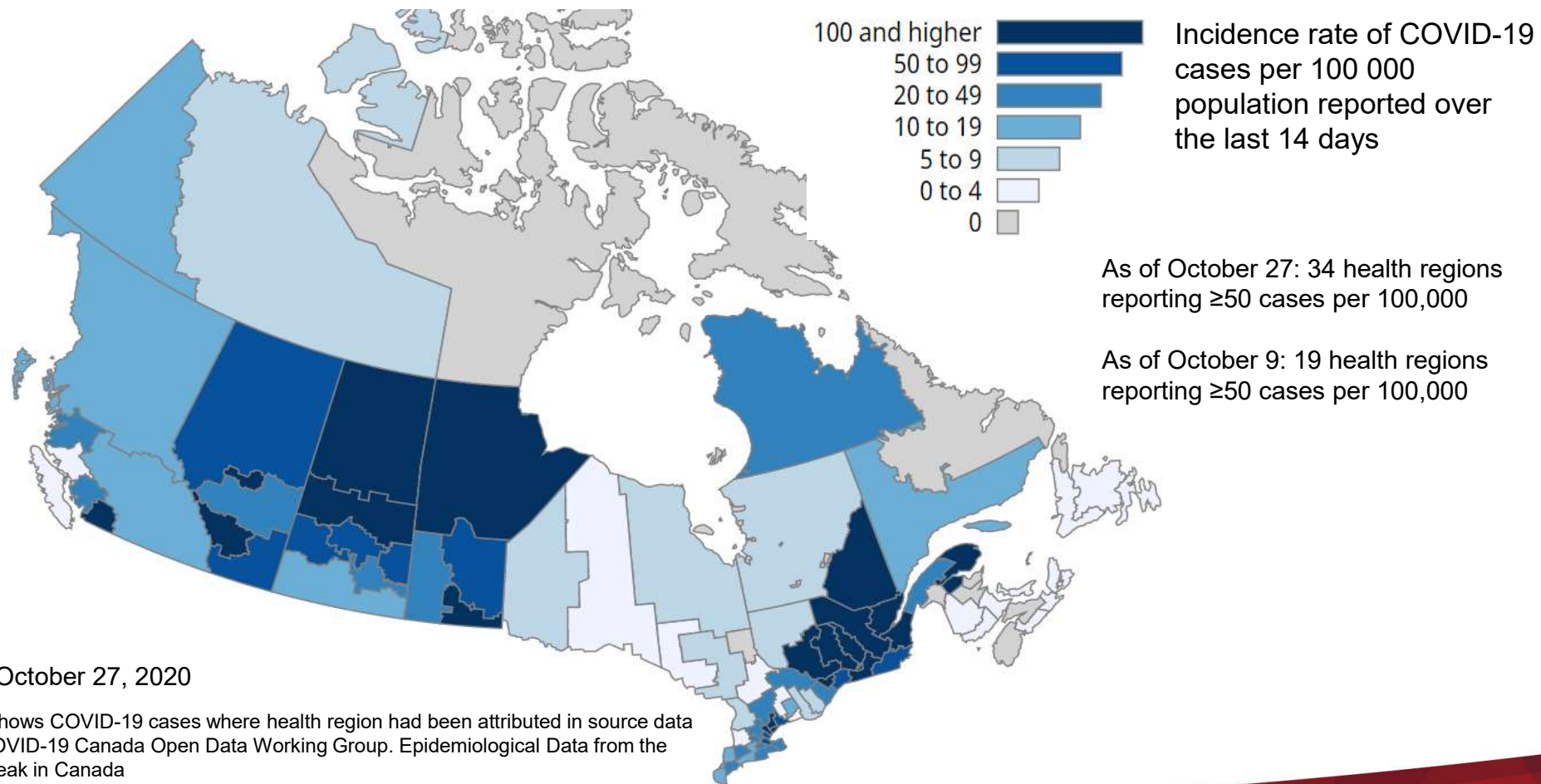
Data as of October 27, 2020  
Calculations are based on date of case report

# Canada continues to test at a high rate but recent spread has increased the percentage of people testing positive

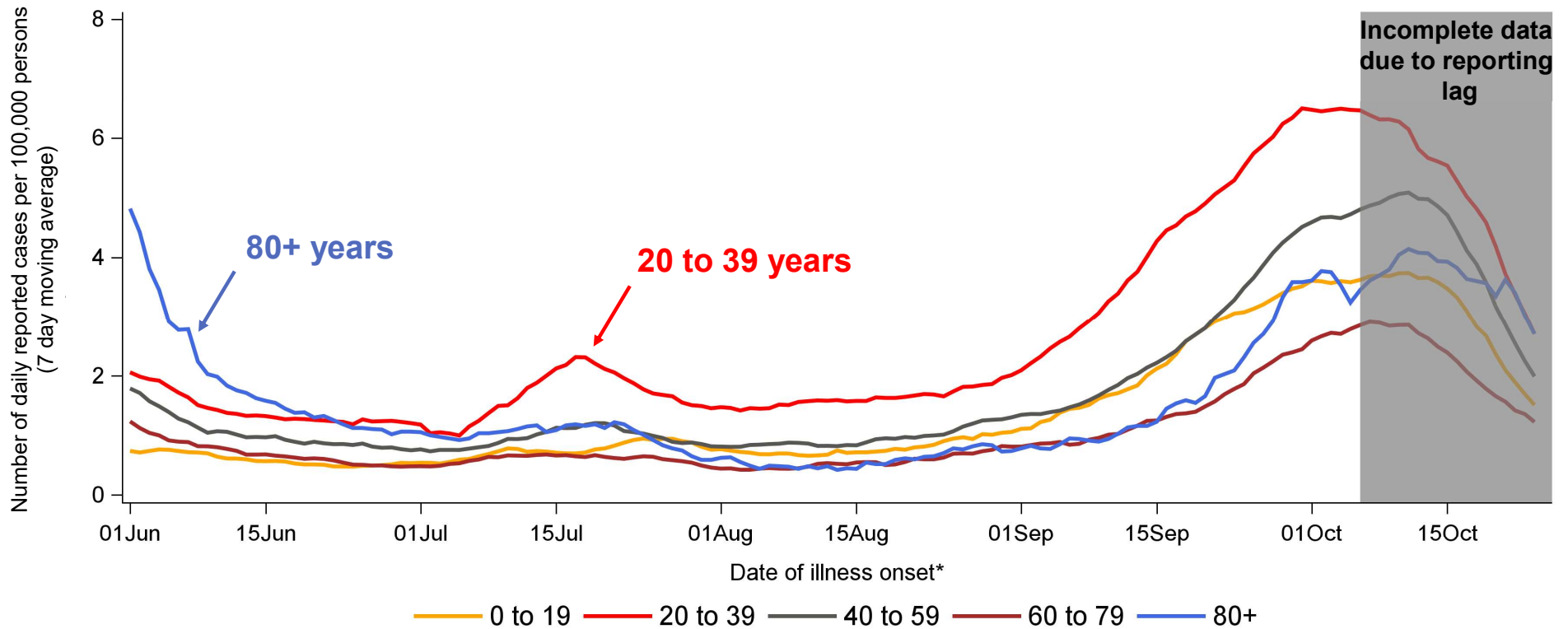


Data as of October 17, 2020

## Over the past two weeks, more health regions are reporting higher rates of COVID-19 infection



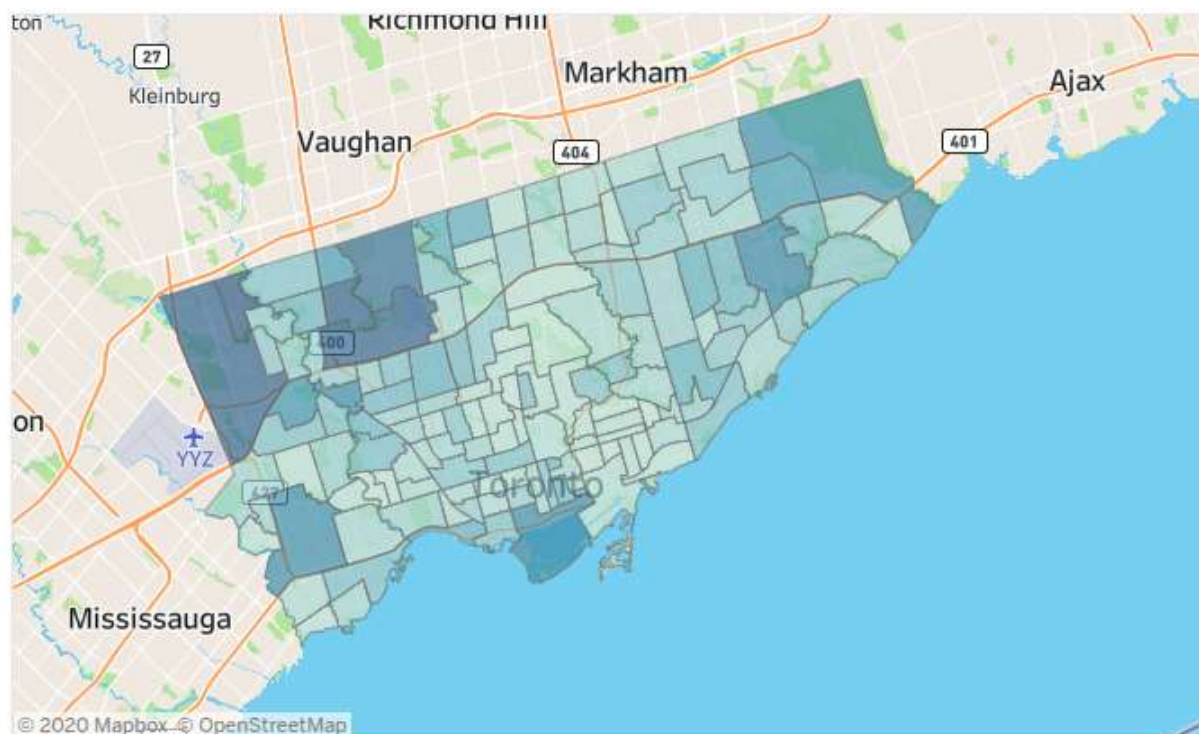
# Incidence of COVID-19 is increasing across all age groups but remains highest among those under 40 years of age



Data as of October 27, 2020

\*First available of illness onset, specimen collection, laboratory test date

## Health inequities are shaping the distribution of the pandemic in Canada

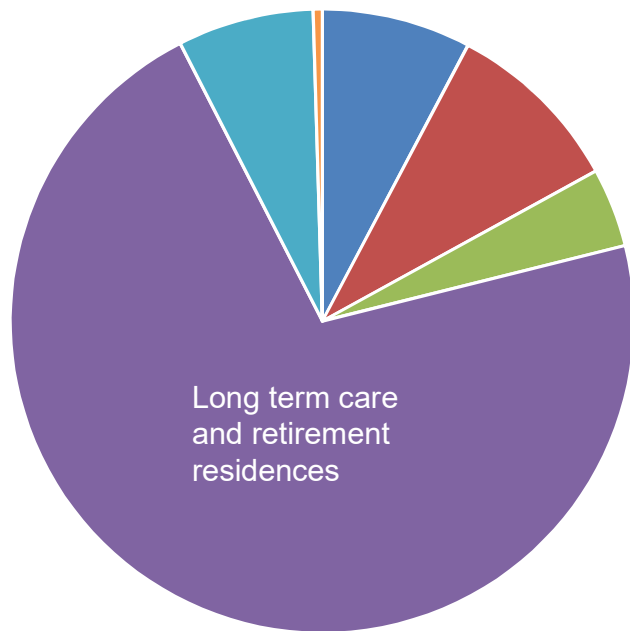


Cumulative COVID-19 cases by neighbourhood, Toronto, Jan 21 to Oct 22, 2020  
Source: Toronto Public Health

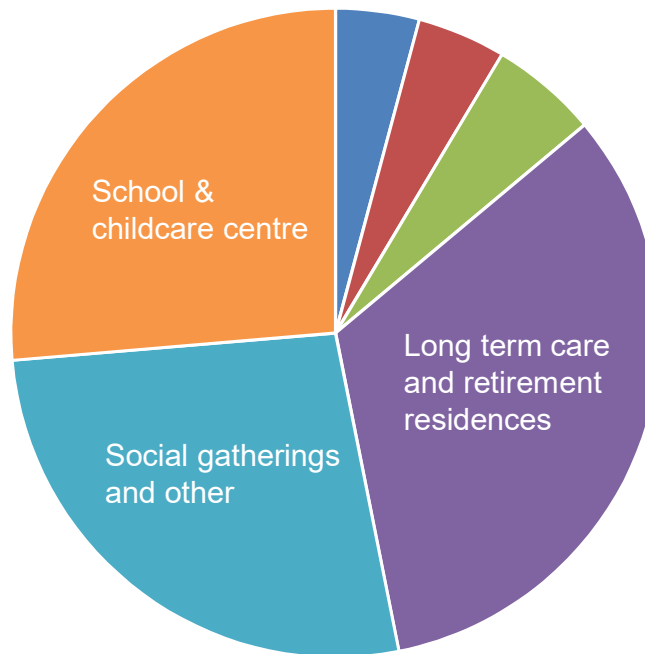
Source:  
<https://www.toronto.ca/home/covid-19/covid-19-latest-city-of-toronto-news/covid-19-status-of-cases-in-toronto/>



## More outbreaks are occurring but they are smaller in size



March-June



July-October

Proportion of outbreaks by setting

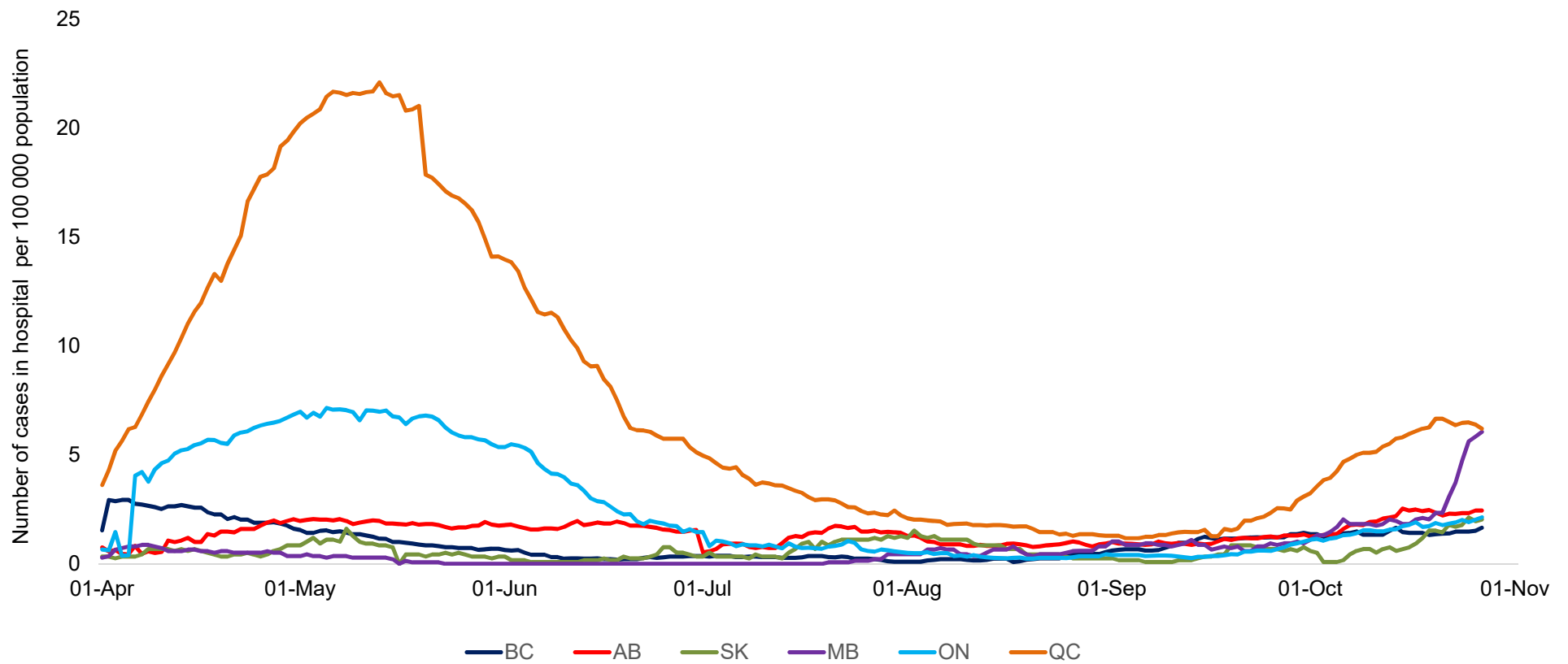
Average number of cases per outbreak

	March to June	July to October
■ Corrections, shelter and congregate living	18	6
■ Healthcare	14	13
■ Industrial (including agricultural)	86	12
■ Long term care and retirement residences	20	7
■ Social gatherings, office workplaces, personal care and other settings	8	3
■ School & childcare centre	16	7

Data as of October 27

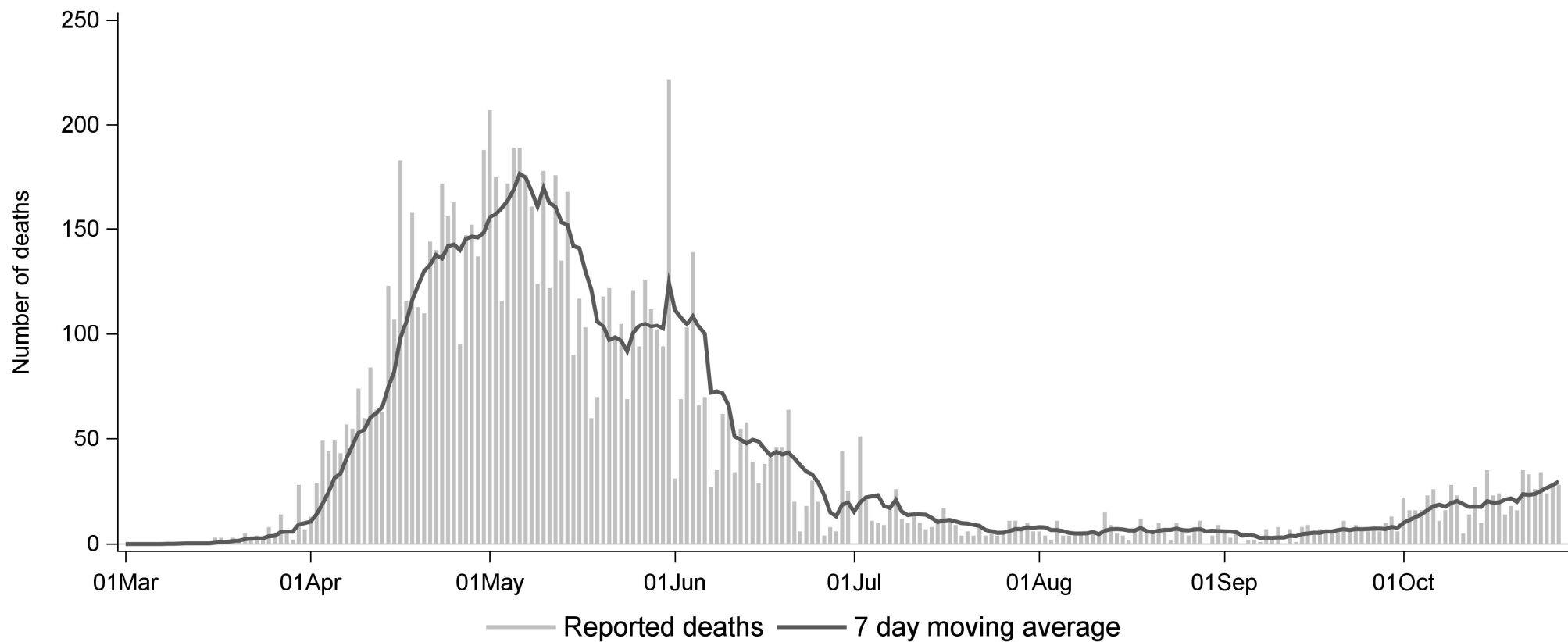
Data sources: Provincial/territorial websites and public information sources  
 \*Note school outbreaks include only those with at least two cases.

## Hospitalizations have increased following the increase in reported cases



Data as of October 27, 2020  
Provinces with recent COVID-19 cases included

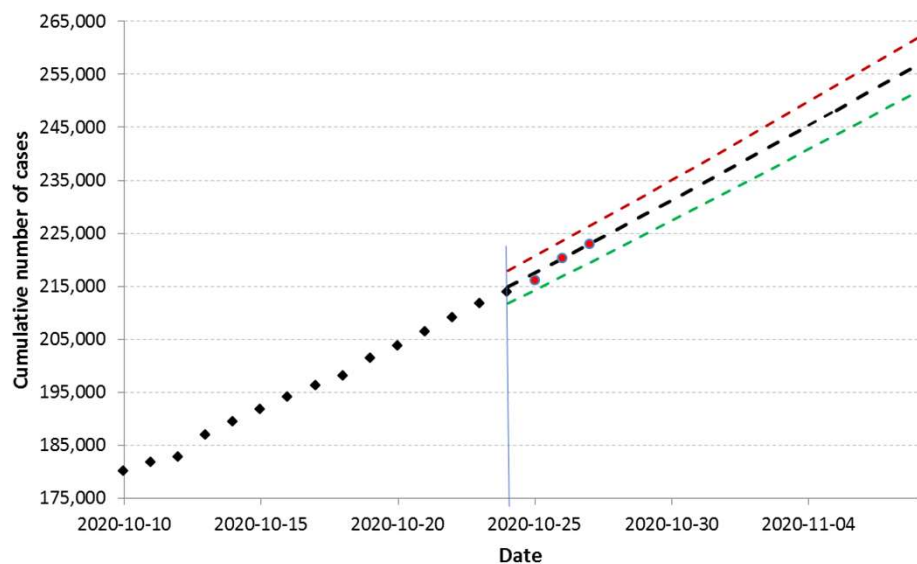
## Daily number of COVID-19-related deaths, which lag behind infections, is also gradually increasing



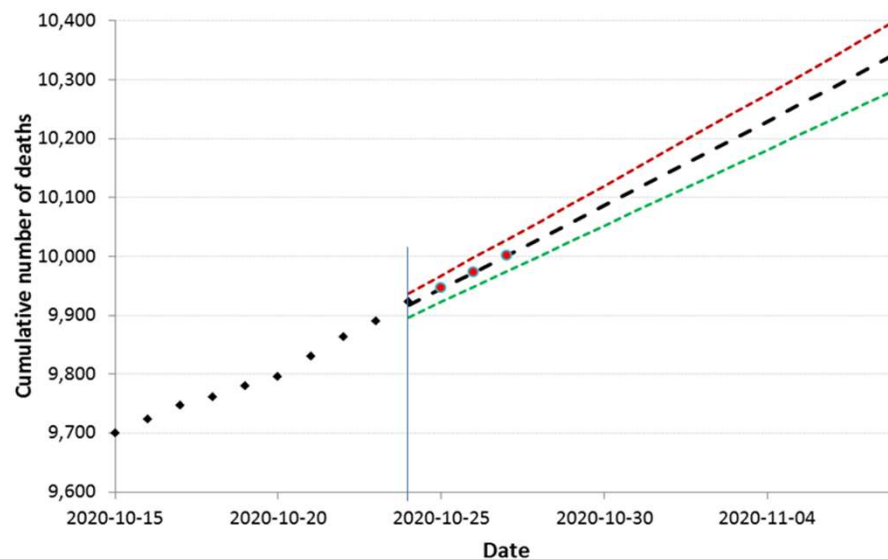
Data as of October 27, 2020

# The latest short-term forecast suggests a continuation of growth

**Cumulative cases predicted to November 8:  
251,800 to 262,000**



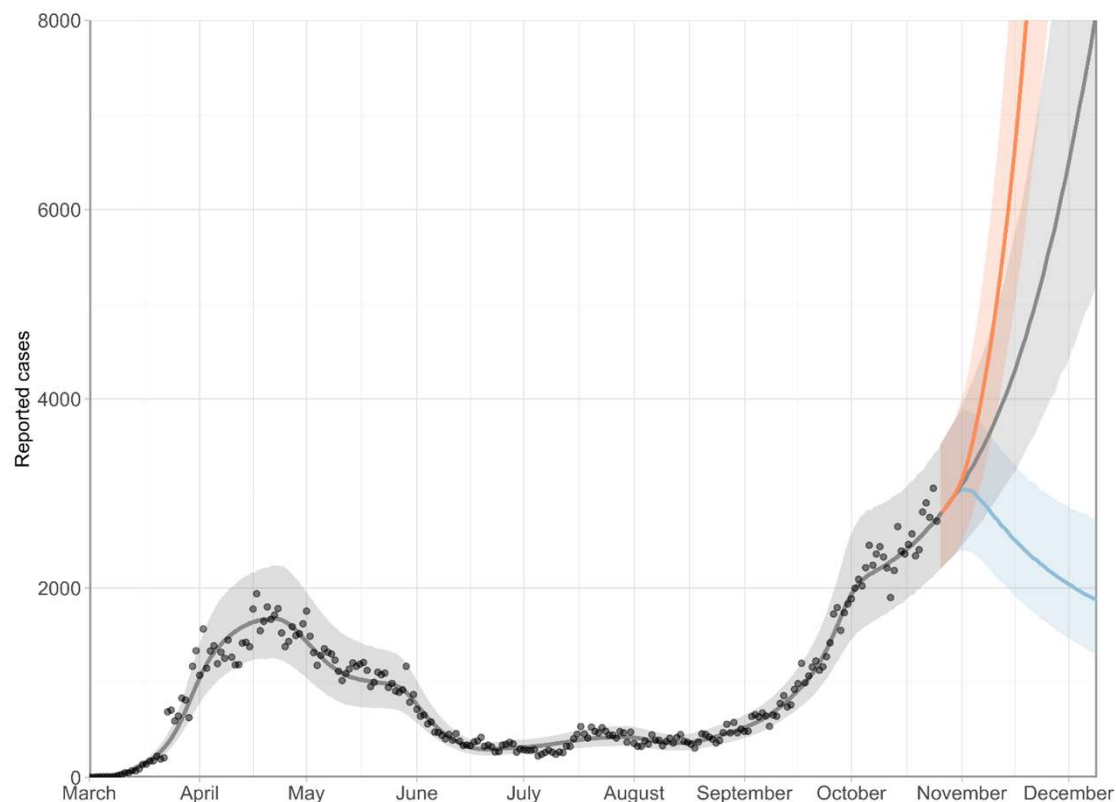
**Cumulative deaths predicted to November 8 :  
10,285 to 10,400**



- ◆ Cumulatively reported cases in Canada by October 24    - - Prediction to November 08    - - Lower 95% prediction limit    - - Upper 95% prediction limit
- Cases added since October 24 when the prediction was made

Extrapolation based on recent trends using a forecasting model (with ranges of uncertainty)

## Long-range forecast indicates that a stronger response is needed now to slow the spread of COVID-19



- If we **maintain** our current rate of contacts – the epidemic is forecast to resurge: **Grey line**
- If we **increase** our current rate of contacts by 20% – the epidemic is forecast to resurge faster and stronger: **Orange line**
- If we **decrease** our current rate of contacts by 25% – the epidemic is forecast to come under control in most locations: **Blue line**

Methods: Anderson SC, Edwards AM, Yerlanov M, Mulberry N, Stockdale J, Iyaniwura SA, Falcao RC, Otterstatter MC, Irvine MA, Janjua NZ, Coombs D, Colijn C. 2020. Estimating the impact of COVID-19 control measures using a Bayesian model of physical distancing. <https://www.medrxiv.org/content/10.1101/2020.04.17.20070086v1>

## Celebrating fall events more safely

- Do your part to slow the spread and prevent new outbreaks
- Limit your contacts and avoid gatherings with those outside your consistent, trusted contacts
- Celebrate creatively with virtual gatherings and physically distanced outdoor activities
- Consistently maintain good public health practices: Stay home if sick, handwashing, physical distancing and wear a mask as appropriate
- Follow guidance from your local public health authorities

**Help limit the spread.  
Download the COVID  
Alert app.**

